BAAQMD Responses to EPA Ambient Air Monitoring Audit

Tech Section	#	Finding	Action
General	3.1	BAAQMD has not identified a central QA manager who oversees and coordinates quality assurance for data collection activities.	BAAQMD Technical Division was reorganized on 7/1/02, when the MDA/QA Manager took over independent management of the QA Section.
General	3.2	BAAQMD does not have a Quality Management Plan or updated Quality Assurance Procedures/Plans for pollutants other than PM 2.5.	An updated QAPP will be completed a year after a permanent QA Manager is hired. Work on an updated QMP will be scheduled after a Laboratory QA specialist is hired.
General	3.3	BAAQMD does not have a formal QA corrective action process.	Operations Data Action Monitoring Notification (ODAMN) procedure operational in 4/02. See finding 8.4.
General	3.4	BAAQMD does not have a uniform program for producing and archiving documentation required for data collection activities.	New Logbooks put into service with new data entry guidelines on 6/02.
General	3.5	BAAQMD has experienced recurring personnel shortages and exceptional difficulty in filling vacancies.	Staffing levels gradually increasing, though some positions remain unfilled.
General	3.6	BAAQMD has historically been a willing partner in numerous special monitoring studies with EPA and with the California Air Resources Board.	No Response
Network	4.1	The BAAQMD's Annual NAMS/SLAMS Report continues to provide a thorough network description, a discussion of known and expected changes to the network and long-term trend information.	No Response
Network	4.2	The District is facing eviction from the long-term SLAMS/NAMS monitoring site at San Jose 4th Street.	San Jose 4th St. Air Monitoring station closed on 4/30/02. San Jose Jackson St. station opened on 6/5/02.
Network	4.3	The shopping center where the District's San Pablo station is located is being redeveloped, necessitating a change in location for that station.	San Pablo El Portal Air Monitoring station closed on 8/24/02. Richmond/San Pablo Rumrill station opened on 9/13/02.
Network	4.4	During the audit, it was learned that there will be reconstruction at the Los Gatos site; for the duration of construction, the ozone monitor would not operate.	Los Gatos ozone monitor did not operate from 10/10 through 12/3, 2002. No State or National ozone exceedances were recorded anywhere in the District from 9/22/02 to 12/31/02.
Network	4.5	The District has attained the national CO standard for at least 10 years but continues to operate 16 CO monitoring sites.	CO is used as an indicator of dilution and calibration gas stability for multiple-pollutant gas calibration cylinders and calibrators.
Network	4.6	District-wide monitoring for SO2 shows maximum levels at less than 10% of the NAAQS. Monitoring at 9 sites is still being carried out.	Eight of the nine SO_2 monitoring sites are located around petroleum refining facilities in the river/delta area.
Lab	5.1	There is not a QAPP or Laboratory QA Manual detailing data quality operations for the BAAQMD laboratory. Note, for PM 2.5 most of these operations are covered by the PM 2.5 QAPP.	PM 2.5 QAPP is in place. Development of PM 10 QAPP or QA Manual will begin as soon as a Lab QA Specialist is hired.
Lab	5.2	There is no internal laboratory or external quality assurance officer coordinating the laboratory QA/QC program.	A staff position, Lab QA Specialist, reporting to the QA Manager is currently unfunded. An acting Lab QA Specialist will be named on 10/27/03

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Lab	5.3	The laboratory does not have a formal, documented corrective action process.	The laboratory will use the ODAMN procedure used by the QA and Air Monitoring sections.
Lab	5.4	Laboratory Standard Operating Procedures (SOPs) and logbooks are not part of a document control system (See General Finding 3.4) An additional concern, the SOPs used have not been marked with a version number or a date of issuance.	As of 9/30/02, all SOPs have been assigned issuance dates and version numbers. A document control system will be developed by the vacant Lab QA Specialist position when filled.
Lab	5.5	There is not an SOP for the data base program used for data acquisition and storage.	Development of SOP Lab 2, Rev. 2.0 (6/02) addressed this issue for PM 2.5 (App. B, C, D, and E) and PM 10 (Section 10.0)
Lab	5.6	The laboratory does not use control charts to assess monitor performance.	Control charts to address drift in humidity and temperature in the PM weighing room are unnecessary
Lab	5.7	Some events and activities occurring in or relating to the PM weigh room are not being documented.	PM weigh room logbook implemented on 1/22/02 (SOP Lab 2 Rev. 2.0 1/22/02, Rev. 4.0 1/28/03)
Lab	5.8	Expiration and receipt dates for filters and supplies are not tracked.	Laboratory supply tracking system implemented on 1/22/02 and documentation partially addressed in SOP Lab 2 Rev. 4.0 (Section 10.0). Next revision of SOP will address full documentation
Lab	5.9	The temperature of the freezer used for sample storage is not logged.	System for documenting freezer temperatures began 6/4/02 and was codified in SOP Lab 2 Rev. 2.0
Lab	5.10	The laboratory was not using and had not reviewed the data validation guidance issued by OAQPS, “PM 2.5 Data Validation Template.”	Reviewed and began using the PM 2.5 Data Validation Template on 6/2/02, included the document in the PM 2.5 Instruction Manual.
Lab	5.11	The serial numbers of the weights used as working standards are not recorded in either the daily calibration logs or the logs used to make comparisons to the primary standards.	Began identifying weight serial numbers in logbook entries on 1/22/02 and procedures will be documented in the next revision of the SOP
Lab	5.12	The shipping blocks used to transport filters to and from the field are made of aluminum and there is aluminum powder present on the blocks which is a potential source of contamination.	No contamination of either trip or field blanks has occurred, although institution of semiannual cleaning of the shipping blocks is recorded in the QA logbook as of 8/7/02 and was codified in SOP Lab 2, Rev. 4.0 (Sect. 7.9) on 1/28/03.
Lab	5.13	The laboratory is not checking the temperature log of each sample shipment unless there is reason to believe a temperature excursion occurred. Additionally, the temperature loggers used do not undergo routine calibration checks.	Temperature logs of each filter shipment are checked and routine calibration checks of temperature loggers were implemented on 6/13/02 and procedures were included in SOP Lab 2, Rev. 4.0 (Appendix G), 1/28/03.
Lab	5.14	The antistatic polonium (Po) strips used do not have an expiration date.	Expiration dates assigned and tracked since 1/22/02 and codified in SOP Lab 2, Rev. 4.0 (Section 4.3), 1/28/03.
Lab	5.15	Samples are disposed of after about one year. Sample disposal is not tracked in a logbook.	Sample disposal recorded in logbooks since 1/22/02 and codified in SOP Lab 2, Rev. 4.0 (Section 10.0), 1/28/03.
Lab	5.16	Storage space for PM 2.5 filters is limited and crowded, and there are no criteria for archiving samples for more than one year.	Although the allocation of additional storage space is not feasible at this time, compliance with storage requirements are maintained.
Lab	5.17	The laboratory does not control PM 2.5 samples in well-defined batches.	Unique batch numbers are assigned to each PM 2.5 sample weighing session by the system database.

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Lab	5.18	Temperature and relative humidity excursions were noted on the weigh room strip charts. No explanation of these excursions was documented.	The requested change in procedure was implemented on 1/22/02 and documentation included in SOP Lab 2, Rev. 2.0 (Appendix A) on 6/14/02
Lab	5.19	The SOP used for PM 10 is limited to an outline for the analytical procedure.	A more complete PM10 SOP, SOP Lab 1, Rev. 2.0, was completed on 6/13/02.
Lab	5.20	Insufficient Quality Controls and QC criteria have been established for the PM 10 filter weighing process.	Criteria for acceptability of balance calibration results, inclusion of lab blanks, and duplicate filter weighing has been established and documented in SOP Lab 1, Rev. 2.0 (Section 6.4) on 6/13/02 and Rev. 3 (Sections 7.7, 9.6 and 9.7) on 9/30/02.
Lab	5.21	The weights used to verify the PM 10 balance are not checked against certified weights.	Certification of the weights used to calibrate the balance has been done annually since 3/21/02 with documentation in SOP Lab 1, Rev. 3.0 (Section 6.6) on 9/30/02.
Lab	5.22	The BAAQMD PM 2.5 laboratory program has been audited on a regular basis by the ARB Quality Assurance staff since its inception. The finding from these audits and the BAAQMD laboratory's proactive corrective actions have significantly improved the quality of PM 2.5 data.	No Response
Lab	5.23	The laboratory archives PM 2.5 data in an organized and logical manner.	No Response
Lab	5.24	The PM 2.5 filter weights are transferred directly to the data system and verified by the analyst. This process reduces the potential for analyst errors.	No Response
Lab	5.25	The laboratory is doing both trip blanks and field blanks for PM 2.5. Trip blanks were an important tool to diagnose problems at the inception of the PM 2.5 program, when blank contamination was a problem. Because trip blanks are a "value added" part of BAAQMD's PM 2.5 program trip blanks frequency can be adjusted based on program needs.	No Response
Lab	5.26	BAAQMD submits quarterly reports to ARB for the PM 2.5 program. These are a valuable QA oversight tool and reflect constructive cooperation between BAAQMD and the ARB.	No Response
Field Ops	6.1	The material of the probe at the Los Gatos station does not meet Appendix E requirements.	The only noncomplying material identified was the inverted funnel, designed to prevent aspiration of water, that was located on the inlet of the probe. It was replaced with glass and Teflon and is in compliance with 40 CFR 50, App. E, as of 12/02.

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Field Ops	6.2	The monitoring objectives of four stations, San Jose 4th Street, San Rafael, Santa Rosa and Concord may be impacted by changes in nearby land use and or land cover.	All probe locations at San Rafael and Santa Rosa are a minimum of 10 meters from any tree drip line and a distance away from any obstacle of twice the height of any obstacle above the probe. The San Jose 4th Street location has been replaced by the San Jose Jackson Street location. Traffic counts for the Concord station are available and the station is currently under evaluation.
Field Ops	6.3	The condition and use of field station SOPs was inconsistent.	EPA and CARB SOPs have been adopted and are in use as of 6/02.
Field Ops	6.4	Monitoring station logbooks are not uniformly maintained.	New logbooks were placed in service and procedures implemented on 6/23/02.
Field Ops	6.5	Manifold maintenance is not logged by station operators and may not be done at some sites.	Manifold maintained is performed annually at a minimum. All manifold maintenance is recorded in station logbooks.
Field Ops	6.6	The station data for NOx is not being logged.	NO and NO2 currently collected. NOx will be added when new analyzers and Data Acquisition Systems are deployed.
Field Ops	6.7	Access to training for station operators is limited to on-the-job training, ARB courses, introductory EPA basic courses.	Staff is given access to all training deemed necessary by the Air Monitoring Manager.
Field Ops	6.8	District personnel expressed concern about a specific vendor's PM 2.5 firmware.	Upgraded PM 2.5 sampler firmware was installed in 8/02 and will continue to be installed as it becomes available.
Field Ops	6.9	Cylinders of calibration gases are not logged or dated at some monitoring stations.	All requirements of 40 CFR Part 58 are being met as of 6/02.
Field Ops	6.10	All operators interviewed demonstrated knowledge and understanding of regulatory criteria, instrument performance and monitoring procedures.	NR
Field Ops	6.11	Written SOPs state performance criteria of + 15% but operators use much stricter limits (+2 or 3%)	SOP was updated to include stricter limits.
Data Mgt	7.1	Training for the new AIRS data system was specifically requested by the District.	As of August 2003, District staff received additional local staff training specifically on the new Web AQS interface.
QA	8.1	Changes in BAAQMD practices may not result in changes to SOPs and updated SOPs have not resulted into QA Manual changes. (General Finding 2)	A December 2004 deadline has been established for updating all QA/QC SOPs with new procedures. Any subsequent changes will be incorporated in future revisions.
QA	8.2	AQDAs issued by ARB are not routinely shared with the audit group & others inside BAAQMD.	AQDAs have always been routed to responsible supervisors and staff. In addition, ARB has been advised that AQDAs also be routed to the Quality Assurance Supervisor and Operation Supervisors will also route any AQDA to QA to ensure that the QA group is informed.
QA	8.3	The Field Audit Group does not adequately document certifications and internal checks of their audit standards.	As of 6/23/02, the Quality Assurance group has developed logbooks for each QA standard, standard certifications and a Master that tracks the item; model number; property tag number; serial number; inventory control number; and the current location of each logbook.

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QA	8.4	There is no formal audit failure report or a corrective action procedure. Additionally, the current warning and control limits used for determining audit compliance are not formalized.	A formal audit failure and corrective action notification procedure was created and implemented in 4/02. As of the 1st Quarter of 2002, SLAMS analyzer and sampler audit values are being calculated and tracked in quarterly audit reports (NQAR). The NQAR information will be used to establish warning and control limits and to issue internal reports to specify corrective actions.
QA	8.5	The audit criteria are not directly based on +/- 20% at the 95% confidence interval, and the data uncertainty at the 95% confidence interval is not tracked quarterly.	Starting with the 1st Quarter of 2002, and at the end of each following quarter, a Network Quarterly Accuracy Report (NQAR) shows the averages and standard deviations for each audit. The upper and lower 95% confidence intervals are then calculated and corrective actions taken accordingly (See response to 8.4b).
QA	8.6	The field audit SOPs are not comprehensive.	Twenty-five QA field audit standard operating procedures have been identified with 20 completed and 3 procedures are in development. The final two SOPs are scheduled for completion by the end of 2003.
QA	8.7	Audit equipment certification documentation is not routinely available in the field.	As of February 2003, audit equipment certification documentation as well as the instrument logbooks are now routinely carried by QA auditors into the field where and when audits are performed.
QA	8.8	The field auditors do not routinely make an entry into the station logbook.	Auditors have been instructed to make entries into station logbooks as of 6/02.
QA	8.9	The gas standards used for audits have a short “shelf life.”	Gas audit blends have been changed to extend the working life of the cylinderized audit gas. Audit gases with longer "shelf life" will be ordered to replace existing audit gases as they expire.
QA	8.10	The BAAQMD audit group noted that there have been problems implementing the National Performance Audit Program (NPAP) audits.	No Response
QA	8.11	The BAAQMD audit group does extensive cross checking of audit standards.	No Response
QA	8.12	The audit and monitoring groups work cooperatively to resolve data quality issues.	No Response
QA	8.13	The NPAP audits are conducted by audit program staff rather than site operators. This added level of NPAP audit independence increases the credibility of the program.	No Response